

REMARKS

Applicant respectfully requests consideration of the subject application as amended herein. This Amendment is submitted in response to the Office Action mailed June 15, 2005. Claims 1-24, 26 and 27 are rejected. In this Amendment, Claims 1, 10, 11, 13, 15, 16, 23, 24, and 26-27 have been amended. Applicant submits that no new matter is added by the present amendment. For example, the new elements added in claims that include “wherein a fluid sensor and a release valve are placed in communication with the buffer tank for bubble release when bubbles are detected” can be found throughout the disclosure, see for example, paragraph [0024] and the features added in the claims that include a constant level of polymer solution “predetermined to be sufficient to prevent air from being drawn into a dispensing solution” can be found throughout the disclosure, see for example, paragraph [0023].

35 U.S.C. § 112, second paragraph

The Examiner has rejected claims 1-22 under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicants regard as the invention due to the term “relatively constant.”

Applicant has amended the affected claims to recite, “a constant level of polymer solution “predetermined to be sufficient to prevent air from being drawn into a dispensing solution.” Applicant submits that in the currently amended forms and with the teaching of Applicant’s Disclosure, the claims 1-22 particularly point out and distinctly claim the subject matter. As taught by Applicant’s Disclosure, the buffer tank provides a uniform flow of the polymer solution since without the buffer tank, replacing the polymer solution source when it is low or empty would disrupt the flow and cause contamination and non-uniformity. (See Description, at paragraph [0023]). The buffer tank provide a constant flow for the polymer solution and also maintains a relatively constant level of polymer solution that is

predetermined to be sufficient to prevent the pump from having to draw air into the dispensing line. For instance, it may be predetermined (as one of ordinary skill in the art could) that a certain level of polymer solution is needed in the buffer tank is required so that when the pump is in motion to move the polymer solution to the dispensing line. Thus, the buffer tank needs to be configured to maintain this predetermined level of polymer solution. Applicant also taught that a fluid sensor (see [0024]) may be used to detect the fluid level in the buffer tank. This is one example of how the predetermined level of solution in the buffer tank is maintained constant to prevent bubbles into the dispensing line. Furthermore, the solution is also drawn from the polymer source (through the buffer tank) in a continuous path thus, the level of the solution in the buffer tank is constant [0023].

Therefore, Applicant respectfully submits that the claims in their currently amended form comply with 35 U.S.C. § 112, second paragraph and request the Examiner to withdraw this rejection.

Rejections under 35 U.S.C. § 103(a)

The Examiner has rejected claims 1-9, 13, 14, 19-24, 26 and 27 under 35 U.S.C. §103(a) as being unpatentable over Tsujii, et al., (U.S. Patent No. 6,641,670, hereinafter “Tsujii”) in view of Kishimura, et al. (JP Patent 08-203359, hereinafter Kishimura. Applicant submits that for the reasons discussed below, the currently amended claims are patentable over the above reference.

As taught by Applicant’s Disclosure, the buffer tank provides a uniform flow of the polymer solution since without the buffer tank, replacing the polymer solution source when it is low or empty would disrupt the flow and cause contamination and non-uniformity. (See Description, at paragraph [0023]). The buffer tank provide a constant flow for the polymer solution and also maintains a relatively constant level of polymer solution that is predetermined to be sufficient to prevent the pump from having to draw air into the

dispensing line. For instance, it may be predetermined (as one of ordinary skill in the art could) that a certain level of polymer solution is needed in the buffer tank is required so that when the pump is in motion to move the polymer solution to the dispensing line. Thus, the buffer tank needs to be configured to maintain this predetermined level of polymer solution.

Applicant also taught that a fluid sensor (see [0024]) may be used to detect the fluid level in the buffer tank. This is one example of how the predetermined level of solution in the buffer tank is maintained constant to prevent bubbles into the dispensing line.

Additionally, this fluid sensor can also detect the presence of bubbles in the buffer tank so that the fluid sensor can communicate the need to open a release valve to release bubble from the buffer tank.

Independent claim 1 recites: (in its currently amended form and emphasis added)

A method of coating a surface of a substrate with a polymer solution, comprising:

providing the substrate; and

dispensing the polymer solution onto the surface of the substrate using a coating system having a pump connected in-line with a buffer tank and a polymer solution source, the pump to draw the polymer solution from the polymer solution source and the buffer tank in a continuous fluid path to dispense the polymer solution, the polymer solution source being connected to a pressure source capable of causing the polymer solution to be transferred from the polymer solution source into the buffer tank, the buffer tank to maintain a [[relatively]] constant level of polymer solution predetermined to be sufficient to prevent air from being drawn into a dispensing solution; and

controlling a momentary valve placed between the pressure source and the polymer solution source that allows pressure to be applied to the polymer solution source, wherein a controlled activation of the momentary valve is needed to allow pressure to be applied to the polymer solution source; and

wherein a fluid sensor and a release valve are placed in communication with the buffer tank for bubble release when bubbles are detected.

Independent claim 10 recites: (in its currently amended form and emphasis added)

A method of coating a surface of a substrate with a polymer solution, comprising:

providing the substrate;

dispensing the polymer solution onto the surface of the substrate using a coating system having a pump connected in-line with a buffer tank and a polymer solution source, the pump to draw the polymer solution from the polymer solution source and the buffer tank in a continuous fluid path to dispense the polymer solution, the polymer solution source being connected to a pressure source capable of causing the polymer solution to be transferred from the polymer solution source into the buffer tank, the buffer tank to maintain a [[relatively]] constant level of polymer solution predetermined to be sufficient to prevent air from being drawn into a dispensing solution; and

wherein an enable valve is placed between the buffer tank and the pump wherein opening the enable valve allows the polymer solution to flow to the pump, wherein a fluid sensor is coupled to the polymer solution source, the fluid sensor configured to detect the polymer solution level in the polymer solution source, and wherein the sensor is capable of shutting off the enable valve when the polymer solution level in the polymer solution source is detected to be substantially low or empty; and

wherein a fluid sensor and a release valve are placed in communication with the buffer tank for bubble release when bubbles are detected.

Independent claim 13 recites: (in its currently amended form and emphasis added)

A polymer solution coating system comprising:

a substrate station to support a substrate;

a pump to dispense a polymer solution over a surface of the substrate;

a buffer tank and a polymer solution source connected in-line with the pump wherein the buffer tank is connected between the polymer solution source and the pump, the pump configured to draw the polymer solution from the polymer solution source and the buffer tank in a continuous fluid path, the buffer tank to maintain a [[relatively]] constant level of polymer solution predetermined to be sufficient to prevent air from being drawn into a dispensing solution; and

a momentary valve to control pressure applied to the polymer solution source to transfer polymer solution into the buffer tank, wherein the pressure is only applied for a predetermined amount of time; and

wherein a fluid sensor and a release valve are placed in communication with the buffer tank for bubble release when bubbles are detected.

Independent claim 15 recites: (in its currently amended form and emphasis added)

A polymer solution coating system comprising:

a substrate station to support a substrate;

a pump to dispense a polymer solution over a surface of the substrate;

a buffer tank and a polymer solution source connected in-line with the pump wherein the buffer tank is connected between the polymer solution source and the pump, the pump configured to draw the polymer solution from the polymer solution source and the buffer tank in a continuous fluid path, the buffer tank to maintain a [[relatively]] constant level of polymer solution predetermined to be sufficient to prevent air from being drawn into a dispensing solution;

a momentary valve to control pressure applied to the polymer solution source to transfer polymer solution into the buffer tank, wherein the pressure is only applied for a predetermined amount of time; and

an enable valve placed between the buffer tank and the pump wherein opening the enable valve allows the polymer solution to flow to the pump, wherein a fluid sensor is coupled to the polymer solution source, the fluid sensor configured to detect the polymer solution level in the polymer solution source, and wherein the sensor is capable of shutting off the enable valve when the polymer solution level in the polymer solution source is detected to be substantially low or empty; and

a fluid sensor and a release valve are placed in communication with the buffer tank for bubble release when bubbles are detected.

Independent claim 23 recites: (in its currently amended form and emphasis added)

A method of coating a surface of a substrate with a polymer solution, comprising:

securing a substrate on a rotatable substrate station;
dispensing the polymer solution onto the surface of the substrate using a pump,
wherein dispensing the polymer solution further comprises,
drawing a polymer solution using a coating system having a pump being connected
in-line with a buffer tank and a polymer solution source, the pump drawing the polymer
solution from the polymer solution source and the buffer tank in a continuous fluid path to
dispense the polymer solution on the surface of the substrate, and
maintaining a constant level of polymer solution in the buffer tank; and
spinning the substrate to coat the dispensed polymer solution over the surface; and
wherein a fluid sensor and a release valve are placed in communication with the
buffer tank for bubble release when bubbles are detected.

Applicant submits that Tsujii and Kishimura did not teach a fluid sensor and a release valve that are placed in communication with the buffer tank for bubble release when bubbles are detected as recited in the pending claims.

Dependent claims 2-9 depend directly or indirectly from claim 1. Claims 14, and 19-22 depend from claim 13. Thus, these claims are similarly not taught by Tsujii and Kishimura.

Therefore, Applicant respectfully requests withdrawal of the 35 U.S.C. §103(a) rejections.

Allowable Subject Matter

Applicant thanks the Examiner for indicating that claim 25 is allowed. Applicant has also amended claims 24, 26, and 27 to depend from claim 25 and thus submitting that these dependent claims should similarly be allowable. In view of these amendments, Applicant respectfully submits that claims 25, 24, 26, and 27 are now in condition for allowance, and request allowance of said claims.

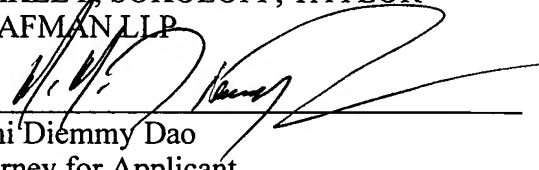
If the Examiner determines the prompt allowance of these claims could be facilitated by a telephone conference, the Examiner is invited to contact Mimi Dao at (408) 720-8300.

Pursuant to 37 C.F.R. 1.136(a)(3), applicant(s) hereby request and authorize the U.S. Patent and Trademark Office to (1) treat any concurrent or future reply that requires a petition for extension of time as incorporating a petition for extension of time for the appropriate length of time and (2) charge all required fees, including extension of time fees and fees under 37 C.F.R. 1.16 and 1.17, to Deposit Account No. 02-2666.

Respectfully submitted,

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